

Supplemental Table 1. Laboratory experiments that have evaluated the effects of dietary restriction protocols on the survival of rats. The table lists 53 experiments involving a group of DR-fed rats paired with a reference group of rats maintained on a control diet (e.g., *ad lib* feeding). Experiments have been ordered chronologically according to the date of publication. Median and maximum lifespan estimates were reported in original research papers, or were otherwise estimated from published survival curves. In most cases, the median lifespan estimate is listed in the table (see “Median LS” columns and footnotes). Estimates listed under the “Max LS” columns correspond to one of several metrics, depending upon data reported in the published study (e.g., maximum survival time, average of longest-lived 10%; see footnotes).

Study	Strain	Sex	Sample Size (n)		Median LS (Months)		Max LS (Months)	
			DR	Control	DR	Control	DR	Control
McCay et al 1935 ¹	White	M	13	14	26.6	17.4	42.8 ^d	23.4 ^d
McCay et al 1935 ¹	White	F	23	22	30.1	27.4	41.8 ^d	35.7 ^d
McCay et al 1943 ²	White	M	10	19	36.2 [†]	19.8 [†]	39.7 ^b	30.8 ^b
McCay et al 1943 ²	White	F	10	19	37.5 [†]	24.1 [†]	41.6 ^b	37.0 ^b
Carlson and Hoelzel 1946 ³	Wistar	M	15	14	22.8 [†]	20.4 [†]	35.2 ^a	27.0 ^a
Carlson and Hoelzel 1946 ³	Wistar	F	15	19	24.4 [†]	22.9 [†]	35.3 ^a	33.7 ^a
Gilbert et al 1958 ⁴	Wistar	M	13	237	28.1	24.7	38.1 ^d	32.3 ^d
Gilbert et al 1958 ⁴	Wistar	F	14	349	30.0	23.1	39.1 ^d	30.5 ^d
Berg and Simms 1961 ⁵	Sprague-Dawley	M	79	89	33.3	25.0	38.3 ^a	31.7 ^a
Berg and Simms 1961 ⁵	Sprague-Dawley	F	39	79	> 40.0	30.3	> 40.0 ^a	38.3 ^a
Ross 1961 ⁶	Sprague-Dawley	M	210	25	31.3	10.2	44.4 ^a	11.6 ^a
Ross 1961 ⁶	Sprague-Dawley	M	120	25	33.0	22.7	49.3 ^a	27.0 ^a
Ross 1961 ⁶	Sprague-Dawley	M	210	25	29.3	30.3	42.9 ^a	41.7 ^a
Ross 1961 ⁶	Sprague-Dawley	M	195	25	33.0	21.7	54.6 ^a	29.8 ^a
Kibler and Johnson 1966 ⁷	Holzman	M	20	40	24.3 [†]	19.6 [†]	28.1 ^d	23.6 ^d
Ross and Bras 1971 ⁸	Chas River	M, F	250	250	29.3	18.7	52.5 ^a	33.1 ^a
Leveille 1972 ⁹	Sprague-Dawley	M	60	60	22.9 [†]	19.6 [†]	28.5 ^d	24.0 ^d
Nolan et al 1972 ¹⁰	Albino	M	50	50	30.8 [†]	23.5 [†]	?	?
Nolan et al 1972 ¹⁰	Albino	F	50	50	29.1 [†]	25.2 [†]	?	?
Ross and Bras 1973 ¹¹	Chas River	M	350	250	28.3	18.3	41.7 ^a	31.7 ^a
Ross and Bras 1973 ¹¹	Chas River	M	249	250	28.3	18.3	48.3 ^a	31.7 ^a
Ross and Bras 1973 ¹¹	Chas River	M	247	250	31.7	21.7	51.7 ^a	35.0 ^a
Drori and Folman 1976 ¹²	Albino	M	49	49	29.5 [†]	24.2 [†]	38.0 ^d	31.7 ^d
Merry and Holehan 1979 ¹³	Sprague-Dawley	F	45	200	36.3	23.5	38.7 ^c	26.9 ^c
Everitt et al 1980 ¹⁴	Wistar	M	25	25	28.6 [†]	26.2 [†]	42.7 ^a	37.3 ^a
Merry and Holehan 1981 ¹⁵	Sprague-Dawley	M	100	497	32.9	23.1	50.0 ^a	35.2 ^a

Everitt et al 1982 ¹⁶	Wistar	M	25	25	31.2	24.3	41.7 ^a	35.0 ^a
Yu et al 1982 ¹⁷	Fischer 344	M	115	115	34.9	23.8	47.8 ^a	32.1 ^a
Goodrick et al 1982 ¹⁸	Wistar	M	24	28	34.7	18.7	46.1 ^a	25.3 ^a
Zamenhof and van Marthens 1982 ¹⁹	Sprague-Dawley	M, F	829	969	14.2	13.2	43.0 ^a	32.0 ^a
Everitt et al 1983 ²⁰	Wistar	M	15	20	30.4 [†]	25.2 [†]	39.6 ^a	36.2 ^a
Wyndham et al 1983 ²¹	Wistar	M	25	25	29.1 [†]	24.2 [†]	42.8 ^a	35.6 ^a
Goodrick et al 1983 ²²	Wistar	M	24	52	31.0 [†]	25.7 [†]	38.9 ^a	32.8 ^a
Davis et al 1983 ²³	Wistar	M	36	36	23.9	22.0	?	?
Yu et al 1985 ²⁴	Fischer 344	M	40	40	35.2	23.4	40.9 ^d	31.4 ^d
Beuchene et al 1986 ²⁵	Wistar	M	45	45	40.9 [†]	33.3 [†]	50.0 ^b	42.3 ^b
Deerberg et al 1990 ²⁶	Han:SPRD	M	96	96	32.2 [†]	28.2 [†]	38.9 ^d	34.6 ^d
Holloszy and Schechtman 1991 ²⁷	Long Evans	M	40	45	35.2 [†]	29.2 [†]	44.1 ^b	40.0 ^b
Shimokawa et al 1993 ²⁸	Fischer 344	M	40	40	36.5	27.5	42.7 ^d	30.7 ^d
Thurman et al 1994 ²⁹	Fischer 344	M	53	49	31.3	25.5	37.8 ^d	30.0 ^d
Thurman et al 1994 ²⁹	Fischer 344	F	52	54	33.0	28.8	39.8 ^d	35.8 ^d
Murtagh-Mark et al 1995 ³⁰	Fischer 344	M	42	41	30.2	22.8	33.8 ^d	25.9 ^d
Murtagh-Mark et al 1995 ³⁰	Fischer 344	M	42	41	25.0	25.4	36.5 ^d	28.5 ^d
McCarter et al 1997 ³¹	Fischer 344	M	40	40	34.1	25.6	40.2 ^d	28.7 ^d
McCarter et al 1997 ³¹	Fischer 344	M	40	40	37.4	26.7	41.2 ^d	31.5 ^d
Fernandes et al 1997 ³²	Fischer 344 x Brown Norway	F	34	34	46.2	34.5	56.2 ^d	41.4 ^d
Shimokawa et al 2003 ³³	Wistar	M	30	30	34.5	31.75	43.0 ^d	36.5 ^d
Vaselli et al 2005 ³⁴	Sprague-Dawley	M	22	25	27.6	23.4	32.6 ^d	27.5 ^d
Vaselli et al 2005 ³⁴	Sprague-Dawley	F	19	24	25.1	20.0	29.2 ^d	27.1 ^d
Merry et al 2008 ³⁵	BN	M	75	102	34.9	30.9	38.7 ^d	34.8 ^d
Zha et al 2008 ³⁶	Wistar	M	30	30	36.0	32.0	48.5 ^a	39.5 ^a
Smith et al 2010 ³⁷	Fischer 344	M	40	31	28.9 [†]	26.5 [†]	35.2 ^b	34.6 ^b
Abalan et al 2010 ³⁸	Long Evans	M	10	8	38.4	26.5	46.7 ^a	35.2 ^a

[†]The value listed is a mean lifespan rather than median lifespan.

^aMaximum survival time in the cohort.

^bAverage of the longest 10% of survival times in the cohort.

^cAge at 25% survival.

^dAge at 10% survival.

¹McCay CM, Crowell MF, Maynard LA. 1935. The effect of retarded growth upon the length of life span and upon the ultimate body size. J Nutr 10:63.

²McCay CM, Sperling G, Barnes LL. 1943. Growth, ageing, chronic diseases and life span in rats. Arch Biochem Biophys 2:469.

- ³Carlson AJ, Hoelzel F. 1946. Apparent prolongation of the life span of rats by intermittent fasting. *J Nutr* 31:363-75.
- ⁴Gilbert C, Gillman J, Loustalot P, Lutz W. 1958. The modifying influence of diet and the physical environment of spontaneous tumour frequency in rats. *Br J Cancer* 12:565-93.
- ⁵Berg BN, Simms HS. 1961. Nutrition and longevity in the rat. III. Food restriction beyond 800 days. *J Nutr* 74:23-32.
- ⁶Ross MH. 1961. Length of life and nutrition in the rat. *J Nutr* 75:197-210.
- ⁷Kibler HH, Johnson HD. 1966. Temperature and longevity in male rats. *J Gerontol* 21:52-6.
- ⁸Ross MH, Bras G. 1971. Lasting influence of early caloric restriction on prevalence of neoplasms in the rat. *J Natl Cancer Inst* 47:1095-113.
- ⁹Leveille GA. 1972. The long-term effects of meal-eating on lipogenesis, enzyme activity, and longevity in the rat. *J Nutr* 102:549-56.
- ¹⁰Nolen GA. 1972. Effect of various restricted dietary regimens on the growth, health and longevity of albino rats. *J Nutr* 102:1477-93.
- ¹¹Ross MH, Bras G. 1973. Influence of protein under- and overnutrition on spontaneous tumor prevalence in the rat. *J Nutr* 103:944-63.
- ¹²Drori D, Folman Y. 1976. Environmental effects on longevity in the male rat: exercise, mating, castration and restricted feeding. *Exp Gerontol* 11:25-32.
- ¹³Merry BJ, Holehan AM. 1979. Onset of puberty and duration of fertility in rats fed a restricted diet. *J Reprod Fertil* 57:253-9.
- ¹⁴Everitt AV, Seedsman NJ, Jones F. 1980. The effects of hypophysectomy and continuous food restriction, begun at ages 70 and 400 days, on collagen aging, proteinuria, incidence of pathology and longevity in the male rat. *Mech Ageing Dev* 12:161-72.
- ¹⁵Merry BJ, Holehan AM. 1981. Serum profiles of LH, FSH, testosterone and 5 alpha-DHT from 21 to 1000 days of age in ad libitum fed and dietary restricted rats. *Exp Gerontol* 16:431-44.
- ¹⁶Everitt AV, Porter BD, Wyndham JR. 1982. Effects of caloric intake and dietary composition on the development of proteinuria, age-associated renal disease and longevity in the male rat. *Gerontology* 28:168-75.
- ¹⁷Yu BP, Masoro EJ, Murata I, Bertrand HA, Lynd FT. 1982. Life span study of SPF Fischer 344 male rats fed ad libitum or restricted diets: longevity, growth, lean body mass and disease. *J Gerontol* 37:130-41.
- ¹⁸Goodrick CL, Ingram DK, Reynolds MA, Freeman JR, Cider NL. 1982. Effects of intermittent feeding upon growth and life span in rats. *Gerontology*. 28:233-41.
- ¹⁹Zamenhof S, van Marthens E. 1982. Effects of prenatal and chronic undernutrition on aging and survival in rats. *J Nutr* 112:972-7.
- ²⁰Everitt AV, Wyndham JR, Barnard DL. 1983. The anti-aging action of hypophysectomy in hypothalamic obese rats: effects on collagen aging, age-associated proteinuria development and renal histopathology. *Mech Ageing Dev* 22:233-51.
- ²¹Wyndham JR, Everitt AV, Everitt SF. 1983. Effects of isolation and food restriction begun at 50 days on the development of age-associated renal disease in the male Wistar rat. *Arch Gerontol Geriatr* 2:317-32.
- ²²Goodrick CL, Ingram DK, Reynolds MA, Freeman JR, Cider NL. 1983. Effects of intermittent feeding upon growth, activity, and lifespan in rats allowed voluntary exercise. *Exp Aging Res* 9:203-9.

- ²³Davis TA, Bales CW, Beauchene RE. 1983. Differential effects of dietary caloric and protein restriction in the aging rat. *Exp Gerontol* 18:427-35.
- ²⁴Yu BP, Masoro EJ, McMahan CA. 1985. Nutritional influences on aging of Fischer 344 rats: I. Physical, metabolic, and longevity characteristics. *J Gerontol* 40:657-70.
- ²⁵Beauchene RE, Bales CW, Bragg CS, Hawkins ST, Mason RL. 1986. Effect of age of initiation of feed restriction on growth, body composition, and longevity of rats. *J Gerontol* 41:13-9.
- ²⁶Deerberg F, Rapp KG, Kaspareit-Rittinghausen J, Lörcher K. The effect of food restriction by time-scheduled feeding on the development of body-weight, lifespan and incidence of spontaneous tumours and diseases in male Han:SPRD rats. *Z Versuchstierkd* 33:9-17.
- ²⁷Holloszy JO, Schechtman KB. 1991. Interaction between exercise and food restriction: effects on longevity of male rats. *J Appl Physiol* 70:1529-35.
- ²⁸Shimokawa I, Higami Y, Hubbard GB, McMahan CA, Masoro EJ, Yu BP. Diet and the suitability of the male Fischer 344 rat as a model for aging research. *J Gerontol* 48:B27-32
- ²⁹Thurman JD, Bucci TJ, Hart RW, Turturro A. 1994. Survival, body weight, and spontaneous neoplasms in ad Libitum-fed and food-restricted Fischer-344 rats. *Toxicol Pathol* 22:1-9.
- ³⁰Murtagh-Mark CM, Reiser KM, Harris R Jr, McDonald RB. 1995. Source of dietary carbohydrate affects life span of Fischer 344 rats independent of caloric restriction. *J Gerontol A Biol Sci Med Sci* 50:B148-54.
- ³¹McCarter RJ, Shimokawa I, Ikeno Y, Higami Y, Hubbard GB, Yu BP, McMahan CA. 1997. Physical activity as a factor in the action of dietary restriction on aging: effects in Fischer 344 rats. *Aging (Milano)* 9:73-9.
- ³²Fernandes G, Venkatraman JT, Turturro A, Attwood VG, Hart RW. 1997. Effect of food restriction on life span and immune functions in long-lived Fischer-344 x Brown Norway F1 rats. *J Clin Immunol* 17:85-95.
- ³³Shimokawa I, Higami Y, Tsuchiya T, Otani H, Komatsu T, Chiba T, Yamaza H. 2003. Life span extension by reduction of the growth hormone-insulin-like growth factor-1 axis: relation to caloric restriction. *FASEB J* 17:1108-9.
- ³⁴Vasselli JR, Weindruch R, Heymsfield SB, Pi-Sunyer FX, Boozer CN, Yi N, Wang C, Pietrobelli A, Allison DB. 2005. Intentional weight loss reduces mortality rate in a rodent model of dietary obesity. *Obes Res* 13:693-702.
- ³⁵Merry BJ, Kirk AJ, Goyns MH. 2008. Dietary lipoic acid supplementation can mimic or block the effect of dietary restriction on life span. *Mech Ageing Dev* 129:341-8.
- ³⁶Zha Y, Taguchi T, Nazneen A, Shimokawa I, Higami Y, Razzaque MS. 2008. Genetic suppression of GH-IGF-1 activity, combined with lifelong caloric restriction, prevents age-related renal damage and prolongs the life span in rats. *Am J Nephrol* 28:755-64
- ³⁷Smith DL Jr, Elam CF Jr, Mattison JA, Lane MA, Roth GS, Ingram DK, Allison DB. 2010. Metformin supplementation and life span in Fischer-344 rats. *J Gerontol A Biol Sci Med Sci* 65:468-74.
- ³⁸Abalan F, Mayo W, Simon H, Le Moal M. 2010. Paradoxical effect of severe dietary restriction on Long-Evans rat life span. *Int J Vitam Nutr Res* 80:386-93.